

### UNIVERSITY OF ALBERTA 27 AUGUST 1993



#### MISITE

- Fed Tredget links burn patients' hydrotherapy to deadly injection
- \* Online catalogue named
- · Retired professor a big Init in elementary schools

# Board suspends presidential search process until 1 October

At its intenting on 6 August, the flowed of Governors passed a motion to suspend the presidential search process. The process, initiated 25 June, will be held in alwyance until 1 October.

The Board further agreed to create a committee consisting of the members of the Board of Governors and the members of the former Environ Committee

The newly formed committee is called the Ad Hoc Committee of the Board Regarding the President. Its purpose is to invite, receive, and review representations concerning the performance of President Paul Deverport from any person or group wishing to make a substitution.

A designated group assigned by the Ad-Hoc Committee is working out the details of the subminion making process and formulating guidelines under which the committee could operate. It's expected that the Ad Hoc Committee will consider the proposed guidelines 30 August.

The Ad Hoc Committee of the Board Regarding the President will report with recommendations to the Board at its 1 October meeting.

Members of the Ad Hoc Committee of the Board Regarding the President are (from the Board of Governors); Stan Miliner (Chairman); Ron Bercov and Tom Powrie, Academic Staff Representatives; Frank Coughlan, Graduate Students' Association President; Terence Filewych, Students' Union President; Sasha Kristic, Undergraduate Student Representative; Graham Lock and Rog MacDonald.

Alumni Representatives, Anita Moore, Non-Academic Staff Representative; Sundy Mactaggart, Chancellor; Mary O'Neill, Sensiv Representative; and Elmer Brooker, IRII Grace, Al Hiebert, Lew Leibel, Ed Makaresko, Penny Reeven, Robert Rosen and Tom Shields, Public Appointus.

Milner, Grace, Hielsert, and the Chancellor also served on the Presidential Review Committee. Its other members were: John Hanlon, Senate; Grant Smith, Aluesri Association; John Bertie, Sosan McDaniel and Michael Asch, Academic Staff; Fred Otto, Deans' Council; Eugene Lechelt, Chales' Council; Rod Wilson, AAS:UA; Elizabeth Armitage, NASA; Steven Karp, GSA; Kandy Bolssonnault and Suzanne Scott, Students' Union.

### Milner's term extended Will chair Board of Governors for minimum of 3 more months

Stan Miliner, Chairman of the University of Alberta's Bosed of Governors, will continue in that capacity until at least November. His three-year term of office, which had been due to expire 15 August, was extended by Advanced Education and Career Development Minister Jack Adv.

"I am pleased to have my term extended," said Milner. "It will give me the opportunity to leave the University in good shape and in good hands."

Milnet, a graduate of the U of A, is President and CEO of Chiefinin International Inc, an Edmonion-based oil and gas company. He was appointed to land the 19-member Board in August 1990.

# President Davenport calls on University to take a leadership role

The President has began a six-month consultation process with Departments and Faculties on campus.

The process follows a meeting convened by Minister Jack: Ady on 22 and 23 July. The marting included appresentatives from all postsecondary institutions in the province. The Minister called on the institutions to work. together to deal with smaller budgets and maintain accessibility.

"It is critical that the University of Alberta assume a leadership role in this process. Given the probable evolution of budgets over the next several years, we must continue to find innovative ways to meet our academic priorities," President Devenport seid.

The President announced the process in a memo to Disana, Chairs and Directors on 32. August.

From 18 to 25 August, consultation meetings were held with Immunology, Occupational Therapy, Economics and Soil Science.

"I would like to visit as many academic and support units as possible over the next six months, to bear the views of colleagues on how we might best determine and most our academic priorities during a period of budgetary restraint," he concluded.



Nicole Killiak, a student at Faculti Saint-Jean, is part of the enthusiastic group of 25 students who are calling alumni to ask for gills to the University of Alberta's 1993 Armsal Fund, Killiak has already raised \$23,771 in pledges since mid-June for specific Faculties, the Library, and special projects. The Student Calling Program as a whole has raised \$200,000 to state and will continue five nights a week, every week, until December.

# Hrudey awarded Canada's first Eco-Research Chair

Canada's first Eco-Research Chair in Environmental Risk Management has been awarded to Steve Hrudey, Professor of Environmental Health at the University of Alberta. In a commony 6 August, the americancement of Dr Hradey's achievement was made by Federal Environment Missister Pierre Vincent. The University of Alberta proposal led 17 applications from across the country.

The Eco-Research Chair, the first to be established under Canada's Green Plan, will provide leadership for internationally secognized researchers to develop programs to tackle complex environmental issues. Of equal importance, Vincent said, is that the Chair will serve as a focal point for strengthening interdisciplinary research. He observed that "the Eco-Research Program Issues or ground in promoting integrated research by the social, natural and health sciences, the humanities and engineering."

In paying tribute to Dr Heucley on behalf of the University, William Bridger, Associate Vice-President (Research), called the creation of the Chair "a landmark event". The proposal for this Chair involved the collaboration of seven Faculties, and the \$2.8 million of funding has required extensive cooperation between three levels of government, three facteral granting councils, two Alberta Government departments, the Alberta Heritage Foundation for Medical Research, the City of Edwards and 19 private companies. "The extent of the partmentitys is extremely impressive," observed Dr Bridger.

In his remarks, Dr Heudey acknowledged that although environmental avvarences has been improving. Cataclines need to recognize that people make pollution. He predicted that most environmental problems to be solved in the next century will be driven by having too.



Steve Museley

many people on this planet consuming two many resources.

"We will have to accept that Mother Earth has finite resources and we must find more sustainable ways of living within those finite constraints. That will require our society to make increasingly difficult choices," he stated.

De Hradey's research will involve collaboration with several other disciplines to develop a more rigorous foundation of environmental risk knowledge. Study of environmental risk involves answering the questions. What can go wrong? How likely is it to go wrong? and What are the adverse consequences?

Mayor Jan Reimer, who participated in the program, said legislators need sound scientific knowlege about environmental risks in order to develop effective public policies and set priorities. She added, "what is learned through this project will be of great value to other countries around the world who face similar problems."

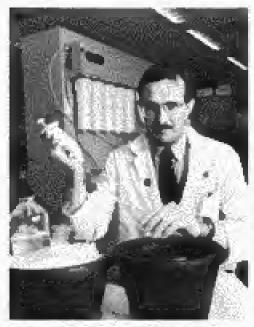
Continued on page 2

# Hydrotherapy linked to deadly infection in burn patients

Firefighters' Burn Treatment Unit releases study

The overall mortality rate of burn patients who contract the bacteria Pseulonous arraginous and have it inditirate their blood streams is over 50 percent. The massler of patients who become infected could be redeced dramatically as result of a basic change in treatment initiated by a group of University of Alberta researchers led by Ted Tredget.

Dr Tredget, à plastic surgeon, researcher, and Director of the Firefightees' Burn Treatment Unit, spent four years studying P. serraginosa. The study began because of a lifethreatening accident involving Terry Shaw of Rimibuy. Show suffered third-degree burns to his back, face and hands when a gas plant boiler ruptured in January 1998. P. acruginose set in 10 days after he was hospitalized, and Dr Tridget reasoned that the source of the



Ted Tredger, Director of the Finelighters' Burn

# **FOLIO**

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All exquirtes and consequences should be directed by:
RON TROMAS: EDITOR

MICHAEL ROBB: ASSISTANT EDITOR

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University Alberta

infection was the hydrotherapy equipment. (Dr Tredget refers to #. arraginose as "an opportunistic gram-negative pathogen that theives in an aquatic environment.")

Results of a survey of North American burn units showed that above than 90 percent of them use some form of hydrotherapy as part of the treatment of burn pulicols.

The study started with Terry and his problem and grew from there," Dr Trudget said at a news conference last week.

His research group compared the incidence and pattern of P. acruginus infections. in hum patients over a two-year period after hydrotherapy was discontinued with the incidence and pattern during the two years precoding the change in wound care policy.

There were six presidencess-related deaths during the hydrotherapy phase of the study and none thereafter, Dr Tredget said.

Stopping hydrotherapy led to other changes in the treatment, including a change from burn creams to using silver rutrate soaks for wound care. These changes resulted in a savings of more than \$400,000, largely in succing time and dessing supplies.

The Alberta Heritage Foundation for Medical Research, the Medical Research Council of Canada and the Firelighters' Burn Trast Fund of the University of Alberta provided financial support for the study.

The Firefighters' Burn Treatment Unit. lecited in the Mackenzie Health Sciences Centre, is a regional referral buen centre for central and northern Alberta, northeastern British Columbia, and a large section of the Northwest Territories. On average, 125 to 150 thermally injured adults and children per year are treated in a single intensive care unit.

#### Eco-Research Chair

Continued from page 1.

Similarly, Jim Edwards, MP for Edmonton Southwest and Passident of the Tsussey Board of Canada, who was on hand to introduce Pierre Vincent, stemmed the importance of this type of research to Canada's future.

Dr Hrusley came to the University of Alberta's Department of Civil Engineering in 1975 following work with the National Reweech Council and Environment Canada. He holds a BSc in Mechanical Engineering from the U of A (1970), and a PhD in Public Health Engineering from the University of London (1979). A temporary transfer in 1986 from Civil Engineering to the Department of Heigh Services Administration and Community Medicine allowed Dr Headey to expand his research focus in environmental health, let 1989, Dr Hrudey's position was transferred premanently to the Faculty of Medicine.

Douglas Wilson, Dean of Medicine, acted as anaster of ceremonies for the program and eignessed the Esculty's pride in having one of its members awarded this honor. He also extended warm appreciation to the five public sector and 19 private sector sponsors for their

Under Environment Canada's Eco-Resmuch Program, more university research. chairs will be armounced during the next two years. Also under the program, six ecosystem research grants are already in process. Further, the Eco-Research Program has awarded 64 dictoral fellowships, with two noore competitions still to come. Among those who have won fellowships are four researchers at the University of Alberto: Karen Kield, Belan. Kotak, Bronda Miskimmin and Heather White Laboratory

### We have a winner

### Online catalogue now known as The GATE

The Library's new colline catalogue is now known as The GATE (Getting Access to Everything).

Randy Reichardt (Science and Technology Library) cause up with the mone and it was relected from about 70 suggestions received by the DRA (Data Research Associates) Pulsfictive and Education Teams.

Entries came from across cumpus, including Library stabl, and from people within the Networking Edmonton's Online Systems (NEOS) groups, said the least's chair, Sandy Compbell. Through Folio, and on behalf of the committee, she thanks all three who entered the contest.

The name, the judges cacidad, readily: reflects the character of a catalogue that will bring regether the (at this writing) 25 NEOS libraries (including government and hospital libraries), and the University's Library, Also contributing to The GATE's status as a Cadillac port of catalogue is the ability to link users with the catalogues of other libraries in Alberta, across Canada, and throughout the

The GATE is a more powerful search motion than the current one. Camabell said. By late December, it should include abrout all of the University Library's holdings. The collections of the various external libraries will he added throughout 1994.



Randy flex hand, left, wrongs of the name that emline-catalogue contest, accepts congratulations and gift contificates to a music street from Director of Libraries Ernie Imples.

Faculty and stell can access The GATE via Main office or home computer. A pureword is not necessary. One feature of the new estalogger is that a quick check will determine solvether a particular book is on the shelf.

Dong Polf, who heads the Library's beformation Technology Services, said Computing and blotwork Services was featuremental in the development of The GATE, and that the Libeary network, with more than 500 PC stations, will be the largest retwork within the campus network.

# Board approves proposal for establishment of pre-professional year and quota change Division of Medical Laboratory Science degree program

The Board of Governors has approved the establishment of a pre-professional year for the Buchelor of Science in Medical Laboratory Science degree program, affective Sep-Sent bardener

The Heard also approved a change to the first-year quots for the digree program from its current level of 36 to a quota of 36 for Phase (Year) I of a three-phase degree program. That clumge is coupled with the introduction of the pre-professional year.

The introduction of the pre-professional year, which has also been endomed by General Faculties Council, is intended to enable students to get the pre-professional year requirements at other institutions, as well as the U of A. As it is now, the four-year program has a first-year quota of 36 students and a second-year quote of 26, with approximately 24 and 23 students, respectively, continuing on into the third and fourth years of the pro-

The changes arms't expected to change enrollment patterns significantly, and the normally high attrition rate in the first year of the program is espected to be reduced. It's expected the changes will not affect the building.

According to Robert Stinson, Director of Medical Laboratory Science, one of the major ressons for the proposal is to allow access to the program to as many outstanding academic students as possible.

The very high attrition (up to 49 percent). in the first year of our program is a siming signal that we must change our admission. procedures," he explained in the proposal. "Presently, admission into the first two years of our program is complex. The proposal has a psuch simpler scheme in which admission will only be to the first year of a three-year program. The Division believes the new program will allow for better equality of opportunity for all applicants."

It's expected the majority of students will earn the necessary credits by taking courses in the Faculty of Science.

Graduates become highly qualified research laboratory personnel and serve as sunfor and supervisory technologists in large hospitals and government and private laboretories. Some go on to graduate work or to teach in various schools that effer medical Inhoratory technology programs.

#### ORIENTATION FOR GRADUATE TEACHING ASSISTANTS

The 13th ainsual Orientation for Graduate Teaching Assistants consists of a symposium 7 and 8 September and follow-up sentons 13 and 14 October.

The orientation is free and is sponsored by University Teaching Services.

The two-day symposium will have concurrent sessions addressing generic teaching issues for instructors and students. Presenters include Anne Naeth ("Leading Discussions"). David Cook ("Successful Lectures"), Loss Browne and Norman Gee ("An Introduction to Laboratory Teaching"), Susan Shaw ("The

Classroom Climate - A Chilly One for Some Students?"), and Huather Prince ("Making Your Entrance").

The purpose of the fellow-up sessions is to have GTAs share relut has worked and witey, and to get input on inuses and tuchniques that they are sensor about.

GTAs are asked to register as noon as provible (some positors have limited esrollment). Registration forms are available from University Teaching Services, 215 Con-trol Academic Building, 492-2826.

# Pharmacology professor regarded as remarkable mentor for graduate students

Tessa Gordon awarded 1993-94 Killam Annual Professorship

When Tessa Gordon first arrived on the University's decestop, she was asked by then Pharmacology Chair David Cook to improve a graduate course that had been on the books for years. The course enrollment was steadily declining and student reviews were not good.

"It seemds like a difficult job for a relatively new member of the academic staff, but my confidence in her was more than justified," says Dr Cook. "In one year the material was updated and restructured, additional cutting-edge information and concepts were added and several young and dynamic teachers were recruited to help her with the areas in which she doubted her own expertise.

"The result was one of the most popular and effective graduate courses we had given as a department, and I believe that Tessa still directs that course and that it is as popular as over."

For this and a number of other remons, Dr Gordon has been awarded a 1993-94 Killam. Annual Professorship.

Of her own scholarship, Dr Gordon says, "I was privileged to obtain graduate and postgraduate training in physiology with two outstanding and inspiring scientists who are leaders in the neurosciences. Gerta Vrbova in England, and Richard Stein in Edmonton. They introduced me to the intellectualism, rigour and fun of science."

Dr Gordon has progressively earned her own distinguished reputation in neuromuscular physiology, in particular, the remarkable adaptability of skeletal muscle under normal and pathological conditions. In fact, her international scientific statuse was recently-recognized by the Alberta Heritage Foundation for Medical Research with a Heritage Scientist award.

One of her colleagues at the University of Arizona says he particularly likes Dr Gordon's research approach. Douglas Staart says Dr Gordon has an ability "to combine experimental techniques and concepts from the traditional fields of anatomy, biochemistry, pharmacology and physiology in her approach to virtually all of her problems."

Dr Stuart says Dr Gordon has been able to apply the modern techniques of molecular and cellular biology to ber four zeros of inter-



Pharmacology Professor and AHWAIK Scientist.

locking interest: neuromuscular development, plasticity, trophism and recovery from injury. Her major experimental work is routinely published in top-tier, referred journals.

She has served on supervisory committees of 29 graduate students in several departments in the Faiculty of Medicine and as an advisor and external PhD examiner in several universities in Canada and the United States. And she coordinates and teaches one of the major graduate cosines in pharmacology.

Since 1984, 20 science and medical students have spent one or more summers working in her laboratory on rewarch projects in the Faculty's summer research projects in those," says Dr Gordon, "three obtained graduate degrees in neurosciences, nine are presently in medical school, four are in medical practice, one is in dental practice, one is a lawyer and one is a graduate student in the Faculty of Arts.

"Without exception, I have maintained contact with the students and I am happy to have helped to irreplet the majority to specialize in the mearosciences, including neurology and psychiatry."



- Deborah Kulty, Clinical Director of the Institute for Stattering Treatment and Research, was one of eight weesen honoured at the YWCA's 12th annual Tribute to Weesen Awards. A speech-language pathologist, Kully was cited in the category of health, acence and technology.
- The University of Alberta Press has garnered an Alcain Citation for its design of the book, Castumes and Scripts in the Elizabethon: Thorives. The Press received third prize-an. Alcoin Citation-in the General Trade Booloc Prone category. The Alcuin Citations, under the auspices of the Alcuin Society of Vancow ver, are the only national awards for excellence in book design in Canada. This year, citations were made on 25 titles out of 208 submitted by publishers. Costumes and Scripts in the Elizabethan Thantses was verilian by Jean MacIntyre (English); the interior was designed by Marian Banties of Typeworks, Vancouver, and the cover by Kerry Watt, the Press's in-house designer and production MARK AGENT
- Greg Hollingshead (English) has become the first author to win two Writers Guild of Alberta best-book awards in the same year. His story collection White Buick (Oolichan) was awarded the 1993 Howard O'Hagan Award for Short Fiction, and his novel Spin Dry (Mosiac) the 1993 Georges Bugnet Award for the Novel. Spin Dry was also shortlisted recently for the Smithbooks/Books in Canada First Novel Award.
- Professor Emeritus Olive Dickason (History) was morntly awarded the Macdonald Prize of the Canadian Historical Association. The prize, awarded to Professor Dickason in Ottawa, was for Canada's First Nations: a History of Faunday Popiles from Eurliest Times (McClelland and Stewart), the book judged to have been the best among all works in Canadian history in 1992.
- Clarence Preitz, Professor Emeritus of Secendary Education, was awarded the Presidential Citation of the International Technology Education Association (ITEA) at that

- body's 55th annual conference held in Charlotte, North Carolina. In 1990, Dr Prettz was recognized by ITEA as a Distinguished Technology Educator. To date, he is the first Canadian teacher educator to receive both awards.
- Chamcellor Sendy Mactaggart has accepted a term on the Advisory Board to the Royal Society of Canada, and has been appointed Governor of the Dunner Canadian Foundation.
- Art Quinney, Dean of the Faculty of Physical Education and Recreation, and David Magae, Chair of the Department of Physical Therapy, have been awarded volunteer recognition plaques by the Sport Medicine Council of Alberta. Dr Mager served on the SMCA curriculum committee from 1983 to 1991, where he was instrumental in developing the Ashletic First Aid course, and where he assisted in the development and direction of the Sport Medicine Council of Alberta's Education Programs. Dr Quinney served on the Board of Directors from 1985 to 1986, whose he helped develop the SMCA, and provided leadership and guidance for the Cooncil's activities and planning.
- His swork with the Kidney Foundation of Canada has resulted in John Dessetor (Biomedical Ethics) being awarded the Commenorative Medal for the 125th Anniversary of Canadian Confederation. The award is bestowed by the Governor General of Canada upon people who have made a rignificant contribution to Canada, to their community, or to their fellow Canadians. The homour was applied for by Mary Catharlor McDonnell, National Pointlint of the Kidney Foundation of Canada, of which Dr Donnelor is a founding aromiser.
- Brian Silzer, Associate Vice-President and Registrar, was selected from arrang Canadian registrars and student services professionals to give the keynote address at a confesence at the University of the West Indies. He also served as a workshop facilitator. The CEDAsponsoned event, held at Ocho Rios, Januaica, control on the management of student admissions, registration and orientation.



Buth Francis, representing the Ateclical Class of 1942, performs a fallowe of love at the southeast contex of the Dephistry-Pharmacy Building. In honour of its S0th anniversary, the Class recently planted a red culc tree, a gift to the University and a memorial to the Class's 47 students, about a third of schools are still living.

# McCalla Professor responds to need for new maps of Cayman Islands

O'we of the long-term aims of 1992/43
McCalla Professor Brian Jones's rewearch program is to decipher the geological
evolution of the Cayman Islands (Grand
Cayman, Cayman Brac, and Little Cayman).

"An integral part of this work is the development of new goological maps that show the surface distribution of the various geological formations that occur on these islands," Professor Jones says. "These maps are needed because there have been no updated versions published since the original ones were prepared by Charles Matley in 1926." (Matley, an Englishman, was based with the Geological Survey in Jamaica.)

Professor Jones says that his year as a McCalla Research Professor figured promirently in the production of these maps. "Such work was based on the material that I collected over the past 11 years and field work that I did in the 1992-93 period. In addition, funding from NSEBC allowed a drilling and coring program to be initiated. Thus, during Suptember-October 1992 and June-July 1993, core was obtained from 40 wells that were drilled at various localities on Grand Cayman."

Collectively, he says, this research has allowed a revision of the strattgraphic framework of the Cayman Islands. Two new formations have already been named and the coring completed this year suggests to Professor Jones that there are at least two other formations that have not been previously recognized.

Having obtained "a much clearer picture of the geological framework of the islands," Professor Jones hopes to produce a new set of geological maps over the next year or so, "Beside their geological importance," he says, "these maps and their associated information will also have important ramifications for the development of freshwater resources and the escavation of healding and construction materials."

The Cayman Islands, located south of Cube and northwest of Janusica, are a colony that maintains close tim with Great Britain.

# Metallurgist probing the past with modern, investigative techniques

Michael Wayman's world revolves around origins and ages of metal artifacts

Many people have asked Mining, Metal-lungical and Petroleum Engineering. Professor Michael Wayman what sparked his interest in ancient materials and technologies and historical and archeological metallurgy. He laughs, "I'm not sure I've found a good answer yet."

Huwgvey, Dr Wayman recalls when Cliff. Hiday (Authorology), who has studied the Copper Insalt extensively, asked him in the early 1990s if it would be possible to distinguish between European-Introduced copper of the 19th century and the naturally occurring copper in the Canadian Arctic.

"We analyzed a number of objects [many were projectile points] from the Arctic and were able to show which were made from European-smelted copper and naturally occurring-so-called native--copper," Dr Wayman recalls. "That's what got me started."

Now, his passion involves the determinabion of the origins and ages of metal artifacts. and the kinds of technological methods penple used to manufacture metal objects.

His education was typical of most metallurgists'. He extrad an undergraduate degreein metallurgical engineering from the University of British Columbia in 1964, went on to complete an MSc in metallurgy at McMaster University in 1966, and then completed a PhD in metallurgy at the University of Cambridge. in 1968. He was hired by the University of Allianetic in 1960:

Dr Waymun still teaches metallurgy engineering courses and, in his capacity as an adjunct professor in the Department of Antheopology, he brings a formidable knowledge of the subject to the task of teaching archaometry (the appplication of science to questions possed by archeologists about metal artificated.

A disciplinary synthesis has occurred in his work, not unlike the metallurgical synthesis that occurs when copper and tio are consbined to form bronze. "When you dig deeply enough into any metallurgical problem -



Michael Wayman: anovering quastions such as, Where did the object come from? What technologies were used to make the object! And how old is it!

whether it be with ancient or modern materials-you always reach a point where the next level of understanding hasn't been reached yet," says the soft-spoken professor. "For example, in working with the Copper Inuit. numerials, the native copper has particular characteristics which baven't been well studied in modern materials. They have particular structural characteristics that are not normal. in modern materials. That's one way we are able to distinguish them from modern materi-ARC.

Dr Wayman, a Pellow of the Canadian Institute of Mining, Metallurgy and Petrolearn, believes the metallurgical processes of the past can not only reveal additional cultural information of the past, but can inform present-day metallurgists. To trying to reconstruct the processes of the past from the microstructures, and all this relates in a general way to how processes affect microstructures. And the development of techniques for better studying microstructures is enhanced." says the rectallurgist, who uses the department's state-of-the-act scanning electron microscope to uncover information about past metallurgists' trade processes.

Some materials have survived the centuries in remarkably good shape. For example, he's examining Chinese brooze objects (miryors and spearheads about 2,000 years old from the Han Dynasty) which have built up a corrosion resistant layer on the surface. They're in excellent condition. "We don't completely understand how this happened, but it appears to have happened naturally. So, if we could understand what happened we could perhaps develop a treatment that would produce the same kind of corrosionresistant behaviour."

Other objects he're studying haven't survived the ages in well on those from the Har-Dynasty. In a bottom drawer, he casualty pulls out a rusty, old tip can from the Franklin. Expedition, sent to him by anthropological Owen Beatie: "We're polcing around the solder to determine if there's any oradence that lead has been leached from the solder by the food, and the sourning electron microscope in very useful for that kind of analysis."

More strently, be and colleagues at the British Museum: have turned their expertion to Northwest Coast Indians' use of early metals, iron and copper, prior to European contact. That investigation may reveal invaluable information about northwest coastal Indian

His archeometric investigation is "worderfully stimulating", says Dr Wayman, "It adds a dimension to science and technology that all our students should be expended to

h's an example of the fact that all techmology and engineering involves people. You can't just look at these things as objects and structures." Dr Wayman, who spent a formations exhibitational in the emich-fifth width Unsucha-Franklin, a University of Toronto anthropologist who has investigated prehistoric copper technology and copper sources in the Western Arctic, the social aspects of technology and wromen's place in a technological world.

His academic sea change has taken place is an environment where many people live. and work in airtight disciplines. "I firmly believe that this is a university and we shouldn't be sestricting our approach to single ways of looking at things. Not everyone accepts my work as being important, though, but I think it is.

Clearly, Dr Wayman likes crossing disciplinary and institutional boundaries. As well as working with on-campus colleagues in the Departments of Anthropology and Classics, he's collaborating with researchers in the British Museum, the Royal Ontario Museum and the Universities of Peresylvania, Toronto-

### Japanese students given grounding in Canadian law and culture

Eighteen law students from a small city horated along the Japanese constitute have not only been perfecting their English shalls, but have been learning the language of law.

Through a joint project of the Faculties of Extension and Law, the Milgata University students have spent mornings studying Canadian law, after two weeks of English instruction with the Faculty of Extension.

The students, one of four groups of Japanese students here in Edmonton during August, have been participating in the English Language and Cultural Seminar programs developed by the Faculty of Extension. "The program provides a unique opportunity for the students to perfect their English skills and learn about Canadian law at the same time," says program manager Minni Hui.

They have also visited the provincial law courts, met with partners of law firms and participated in many different cultural activities

"This not only helps their English language training, but gives the students a greater understanding about law in Canada. We believe it will only further their studies when they reburn to university in Japan," says: Associate Dean of the Faculty of Law, Bruce Elman, who also teaches for the program.

"International affairs will be playing an increasing role in learning and scholarship at the University of Alberta in the years ahead," says President Paul Devemport. "The English Language Cultural Seminar is an excellent way to strengthen ties between the U of A and Japanese students and universities. Over the past two years, it has been my great pleasuse to meet the presidents of each of the four. Japanese universities involved in the seminar, and to find that we share a commitment to increasing the academic links between our institutions."

In addition to the Niigata students, there are about 60 students from three other Japanew universities participating in ELCS this namener. There are pharmacy and destistry students from the Higashi Nippon Galinen University, pharmacy students from Toho University and arts and science students from Shimoka University.

Hui says after seen a great change in the students' personalities during their short stay. in nown. "They are extremely sky when they step off the plane. I think they are quite overwhelmed by the wide open spaces and how large everything is. They are even impressed by the size of their doesn rooms at Lister Halt. but they become more open once they're comfoctable with their surroundines.

"The cultural experience combined with learning is something they'll never forget. Scene of the female students have pierced their ears or had their hair coloured ... things they wouldn't normally do at home."

# Museum of Zoology prepares bird specimens for outreach program

As a trackdriver, harry Johanson kept an engle syst out for key intersections, construction slight, and so forth, but he also induliged his passion for bird watching whenever possible. With his job taking him throughout North America, he saw and admired a great many birds.

Twe been watching back all my life," any Schanson, an Edmontonian.

These days he's taxing his resemory and applying his knowledge of taradermy to the preparation of educational masseum bird specimens for the Department of Zoology's outreach program. The specimens will be loaned for brief periods to provincial park naturalists, public schools, the John Jarason Nature Centre, the Kerry Wood Nature Centre in Red Deer and



History Johanness at words in the Biological Sciences Centre. Birds of prey are his favourites; the birds physics have an a Ferriginesis hand, felt, a screech end, centre, and a case-whet cost.

other groups and organizations that have educahand mandator. The project is made possible by a grant of \$1,700 to the department by the Recnuntion, Parks and Wildlife Foundation.

Johanson, who is retired from truckdriving. and who makes his living as a taxidermist. "knows his birds as well as anyone," says for Nelson, Professor of Zeology and Convenor of the Curators of the University of Alberta Maseam of Zoology (UAMZ). He (Johanson) has prepared 70 birds since mad-July and hopes to reach RIO before the grant is exhausted in mid-September.

"All the specimens are irreplacable; only a reagpie specimen would be replacable," says Dr

Among the specimers that have been prepared are an evening grosbask, a loon, and a burnowing owl.

Bircle that have ever with accidents, for evample, getting caught in Subsenteen's meteror crashing into windows or stead clows on highscays and back roads, are brought to the department by Alliania Fish and Wildlife and by indi-**Victorial** 

The UAMZ contains material from throughout the world as well as an insportant historical. record of the province's factor. The museum Inspecific in its many base in refracation, emission. and somice from the Priords of the Maneum. Museum and Collections Services, Alberta Musevens Association and Government of Canada Missourie Assistance Program.

# Emeritus Professor conveying the wonders of science to youngsters Will Reese leaves the U of A behind, but not teaching

Will Reese's students applaced. In fact, they frequently cheer his performences. And every once in a while, one of his students will come up and give him a hug. So when the former professor's colleagues still teaching in the Faculty of Education ask him. "Don't you miss teaching university students? Dr Reese says, of course he does, but they never once cheesed after he finished one of his hourts and a

Determined to continue doing something vital and worthwhile following his retirement a few years ago, Dr Roese (Professor Emeritus of Elementary Education) turned to elementary schools where he could continue to do what he loves-teaching. Part performer, part storyteller, part magician, part scientist, the white-bearded 67-year-old is invited to schools across the province to tell stories and cultivate students' interest in science.

Once he stood before a university lecture ball with books and chall; now he stands telling stories and demonstrating the wonders of science before students sitting at his feet. Spread on a table behind him are his tools: ropes, water, bottles, balloom, candles, and all sorts of pacaphernalia.

His second career has enabled him to accomplish several things. First, he has a love of children and of life, so what better place than schools to nuriuse those loves? Second. he water't ready to retire at age 65, although he quickly points out that he was ready for a change. Says Dr Reese, "I tell others that you have to start thinking about retiring into other things, not retiring out of things."

Third, Dr Recse has had a long-standing concern about the quality of science instruc tion in the elementary schools. "When I was supervising student teachers, I found out there wasn't much science going on in the elementary schools, so I wanted to get in there and shake things up a bit. (Dr Reese actually began doing his programs in schools long before he retired from university life.)

"I think the schools are doing a better job of teaching elementary science, which isn't saying a hell of a lot because they sween't



Starsteller and science teacher, Will Roose, paying a visit to JH Picard School in Edmonton

closing a lot in the first place," he says bluntly. The problem wasn't specifically with curriculum, he explains, but, rather, with educational philosophy. "The teacher has to know the aresvers. Well, in science, a Grade 2 student can ask questions that a Nobel Prize-winning physicist cart't answer.

"This bothers teachers. They didn't like science when likey were students. They were airaid of science. And they are afraid the kidsare going to ask them questions they can't arrower. But gradually I hope we're convincing teachers that there are more and better resource materials to make it easier for them to help the child final the answers. The teacher donn't have all the antwers."

He notes that it takes longer for teachers to prepare to lench science, and the schools aren't giving them enough time to do that. Also, children don't learn science in a uniform man ner. "It's not like learning the multiplication. tables ... and [therefore] it requires more teacher attention to what the child is beening."

There are payoffs for teachers, however. "You never get bornd teaching science, it's emjoyable and it's rewarding,"

Dr Roese has certainly found the activity rewarding, and not just in the classroom setling. During his coverr, he's produced innumetable educational programs for radio and isdevision stations. He remembers once when he was doing a program in a series for CBC on the sames, the technician began counting down the end of the program, 10. S. B. 7... A fly buzzing around the studio landed right on the end of his nose. Dr Reese crossed his eyes. and said, "and next week we'll be studying the sense of touch." The studio crew laughed aproactionally. It was a great ending for the program, he recalls.

# **AUCC** issues federal election package

The Association of Universities and Col leges of Canada (AUCC) has developed an information package to educational institu tions in making their case during the next federal election.

The package sent to the 83 institutional members of the amociation includes backgrounders on:

- · economic benefits of the universities
- AUCC's proposed income contingent. repayment student assistance plan,
- · questions and answers on AUCC's. proposed student assistance program,
- A University Affairs article on AUCC's new student assistance plan for alumnipublications or university newspapers.
- · university research, and
- · university trends.

AUCC has encouraged its member instibotes to use the information in "dealings with local candidates and media."

The information kits were sent to the Presidents and Directors of Communication at AUCC member institutions.

#### SURPRISE STORYTELLER

Witten a group of children from the Students' Union and Community Daycare arrived at the University Busikstore they know there would be stories but they didn't know who would read them. It turned out to be "Karbio," in the person of Colleen Olexial: Besides storytelling, the children's visit festimed a slinosaur puppet show and refreshments.

# Office of Human Rights relocates

he Office of Human Rights his moved to 252 Athahasca Hall. All Office and staff telephone numbers remain the same as listed in the University's Telecommunications Dissciory.

His objectives are straightforward. "I hope I'm promoting an interest in science, writing, storytelling and reading. I want to give children the idea that reading is something they'll have for the rest of their life," says the author of two well-received children's books, The Money Tree and Edmund and the Talmit Stone:

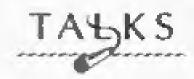
Reading is an important adjunct to making life worthwhile.

"All of these things are based in creativity, so in many of the activities that I do in schools, I stress the creative aspects," says Reese, who adds that the biggest educational crime is boring the children.

"The way I keep from ever boring myself is by never doing the same program twice," he says. Some schools ask that he emphasize his storytelling (a talent be learned from hisfather and which he later boned on four childeen), while others want him to emphasize his scientific elements.

About 25 years ago, when he was teaching at the U of A, publishing, writing playsand working in radio and television, he began doing the school program on a voluntary basis. He travelled to the far-flung corners of the country, to places such as Holifax, Winnspeg, Igloolik, Frobisher Bay and Inuvik, "Human nature is funny, though," he says. When it was a voluntary thing, the people in the schools would give me the idea that they were doing me a favour to let me come in and use their valuable classecom time. When I started charging for it, the red carpet rolled

Today, he presents his innovative and entertaining program primarily in the northem half of the province. Typically, people hear about it through wond of mouth.



#### BOTANY

1 September, 3:30 pm Julie MicDonald, "The Kinetics of Aluminum Uptake by Cell Suspensions of Phaseolas Visigoris L." N4-149 Biological Sciences Contre.

#### CHEMISTRY

13 September, 11 am

Ronald Parry, Department of Chemistry, Rice University, "Recent Investigations on the fliosynthesis of Natural Products." V1-07 V-Wing.

#### EXTENSION

16 September, 7:30 pm

Jan Fox, warden, Federally Sentenced Women's Facility, "The Federally Sentenced Women's Initiative." 2-36 University Exten-

#### GROCEAPHY.

3 September, 3 just

Ross D Powell, Department of Geology, Northern Illinois University, "Glacio-Marine Sedimentation." 3-36 Tory Building.

13 September, 2 pm

Donald H Perkins, Nuclear Physics Laboratory, University of Oxford, United Kingdon, "Are Diamonds Forever?" V1-29 V-Wiley.

14 September, 2 pm. Professor Perkies, "60 Years of Nestrico Physics." V1-29 V-Wing.

15 September, 2 pm Prolessor Perkins, "Solar and Almosphetic Neutrinos." V1-29 V-Wing.

# CURRENTS

#### Faculty Badminton Club Open House

Faculty and research staff, including spouses, are invited to the Faculty Badminton. Club's open house, 8 to 10 pm, 8 September, Education Gym. Members range from heginners to advanced players. Come for fun and exercise. Free birds. Loaned rackets available. Information: Karl Chuang, 492-4676.

#### **Tundamentals of Biosafety'**

Fundamentals of Biosafety is a course intented for University staff and graduate students who are expected to handle biobuzards. Topics include: lab-acquired infections, hazard identification, control of biohazards and regulations and responsibilities involved with biobacards in the workplace.

The six-hour course is achechaled as folform: 13 and 14 September, 1:30 to 3 pm; 15. 16 and 17 September, 1:30 to 2:30 pm. There well be an epitoma; one-hour mans 22 Septomher at 9 nm.

Course cost: \$35 per person (University staff and students); \$250 per person (Non-Drivenary personnel). Registration deadline. 1 September. Cephas Don Kossol, 492-3142. for further details.

The Department of Housing and Food Services is sporsoring its second annual Envirommertal Avvaceness Exposition (Enviro Fair 3(3) and BBQ for students and staff. The purpose of the event is to branch environmental. initiatives in the residences and to increase visitors' awareness of the need for energy suchactions and waste management.

All public education groups on campus and in the Edmonton area are invited to set up displays at Enviro Fair, to be held on the front grounds of Lister Half, 16 September,

The contact person for Enviro Pair is Mischel Ouellotte, Residence Life Programming Manager (492-1281).

#### Dentistry schedules fun run/walk

The Faculty of Dentistry's Second Annual For Run/Walk will take place III September. The event, which consists of a 10-km run and a 3-lon walk (both on University grounds); is for all individuals involved in the dental peofession, their families and friends. All procords will go to the found for Dentistry. Call 492-5023 for burden details.



The University of Alberta is committed to the principle of equity in employment. The University encourages applications from altergrand property. distribed persons, members of visible minurities and

#### **ACADEMIC STAFF**

#### **DEAN OF STUDENTS**

The University of Alberta is seeking applications for the position of Dean of Students. This competition is open on a secondment basis to all continuing members of faculty of the University of Alberta.

The Dean of Students reports to the Vice-President (Student and Academic Services). As the sensor admirostrator in charge of studonts and student services, the incumbent will work closely with the University community-including service units, Faculties, academic department, students and student essentitions—to enhance the student experietice at the University of Alberts. In addition, the incumbent will have direct responsibility for the effective management and coundingtion of nine administrative units charged dinectly with providing services to students.

The nocessful candidate will possess skills in some or all of the following areas: program development; program evaluation: conflict management, including advocacy, mediation and conflict resolution; policy development; administration; and communication. A successful record of relating effectively with both individual students and student groups is essential, as is a demonstrated empathy for the ambiguous and complex issues facing students today. Proven Iradership experience in a consultative environment is also required.

The incombent will have an understanding of the basic principles of natural justice and be able to demonstrate the important role

of advocacy, mediation and support in custoring that students are dealt with in accordance with those principles. In addition, the successful candidate will understand the University as a complex community and will positive the desire and ability to make a difference within that community by assisting the University in defining and enhancing a healthy and productive relationship with its students.

The Dean of Students will be aware of the increasing diversity within the student population and will assist the University in ensuring that this divursity is reflected in University services, policies and practices.

The successful candidate will understand that the quality of the student experience at the University of Alberta is measured not solely by the accomplishment of academic goals but also by the accomplishment of personal aspirations and career goals.

This is a five year appointment effective I January 1994. It is anticipated that a final selection will be made no later than I November. Faculty members interested in this positionshould apply in confidence by 21 September to: Dr Lois Stanford, Vice-President (Student and Academic Services), 3-5 University Hall.

Letters of application should include a brief statement of qualifications specific to the position as well as the names and phone numbees of at least three referees familiar with the applicant's professional experience. A curricuhow pitter should also be included with the application.

#### SUPPORT STAFF

To obtain information on support staff positions, platter contact Personnel Services and Staff Relations, 2-40 Assimbon Hall, telephone 492-5201. You can also call the Job Information Line at 492-7205 (24 hours) or consult the weekly Employment Opportunities Bulletin.

# EVEN,TS

EXHIBITIONS

#### BRUCE PER SPECIAL COLLECTIONS LIBRARY

Until 1 October

"Art Nouveau Illustrations from Austriaand Germany, 1895-1912." House until 1 October-Monday to Friday, 8:30 am to 4:30. pm; closed weekends. 87 Rutherford South.

#### FAR CALLERY

Hotel 29 August

"Ormsde: Woman's Hand." Japanese Kinn calligraphy.

#### **EXTENSION CENTRE GALLERY**

Until 30 September

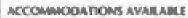
"Art of the 1960's and 1970's"--- an exhibition of works by six Edmonton artists working during these two decades. Gallery hours: sentil 31 August-Monday to Friday, 8 am to 4 perc beginning 1 September -- Monday to Thursday, 8:30 are to 8 proc Friday, 8:30 are to 4:30 pm; Saturday, 9 am to room. Information: 492-3034, 2-54 University Extension Centre.

#### MEMULLEN GALLERY

Listell 1 September

Ella May Walker: An Alberta Modernest"- cheoricles the development of an Edmonton artist's look at life in Alberta from the late 1940's through the 1950's. "Ella May Waller: Fortress North --- An Illustrated History"— is comprised of original watercolour and talk works both intended for her book, Fortress North, and actually used in its production. Gallery hours: Monday to Friday, 10 am to 4 pm; Saturday and Sunday, 1 to 4 pm; everangs subject to availability of volunteers. Information: 492-8428 or 492-4211 Macketzár Health Sciences Ceptre.

Calligraphy from Onnade: Woman's Hand,



VICTORIA PROPERTIES - Experienced, lovewledgeable realtor with Edmonton references will answer all queries, and send information. No cost or obligation. Call (604) 595-3200, Lois Dutton, Re/Max, Ports West, Victoria, BC

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RENT - Executive condo. View of river valley. Totally renovated, 1,380', two bedrooms, two balcomies. Marble floors, hardwood too! Sit-down shower/steam room. 51,200/month. Immediate. Western Relocation, 434-4629.

SALE-Parkaffen, two bodroom bungalow. Excellent location, cul-de-sac, pie lot. Main floor totally upgraded. Downstains, three piece bath, bedroom. Single garage with carport. Sherry Mailo, Re/Max, 438-7000.

SALE - Riverbend, traditional four bedroom, two-storey, 2,300. Excellent location, cul-de-sac, exceptional pie-shaped lot. Shorry Mailo, Re/Max, 438-7000.

SALE - Crandvine, traditional two-storey, totally upgraded. Hardwood floors, calc latchers. Main floor lemily rooms. Fully fireinhed basement. Sherry Mailo, Re/Max, 436-7000.

RENT - Old Strailscone, three bedroom, furnished main floor suite. Hardwood floors. Utilities included, \$850/month, Available inmediately, 434-6287.

LONDON, ENGLAND - Two bedroom flat available for moethly lease. Very central (Fullham, by St Stephen's Hospital), luvely back gardens, recently renovated - comes fully furbished. For information, call 425-9175.

HOUSE EXCHANGE - We'd like to be in Edenonion Christmas 1993, Would you like in be in Nansimo? Our home has four bedrooms, three baths and overlooks Departure Bay, Call 437-2696.

SALE - Super 100' by 200' lot backing onto ravine with southern exposure. Comes with great 2,150 home with a 650 atmem complete with hot tub. Dick Scragg, Royal LePage, 436-4700.

SALE-Three bedroom townhouse. Riverbend, 1,400°, \$154,900; three bedroom, Physic Park, Minuses Jose University, \$129,900 Janier Duke, 488-2331, Royal LePage, 437-7480.

RENT - Belgravia, Four bedroom semibungalow. Lovely yard, single garage. Furnished. Ten-minute walk to campus. \$1,100/ month. Noremokers. No dogs. Available 1 September for one year. Western Relocation,

RENT - Reverbend, new executive home. Three bedrooms plus den. \$1,500/month. C Singh, 424-5375 (office), 434-1393 (home).

RENT - Speciagular view, houry one bedrecen siver valley condo. One block from Grandin LRT, Available after 1 September. \$650/ month unfurnished; \$745, Regulated. Empley, 429-7979.

SALE - Large, well-built family home. Exclusive, mature neighbourhood. Quiet location, south backyard. Impordiate possession available. Juan MacKenzie, Spencer Realty.

SALE - Windsor Park. Walk to University, beautiful view. Large bungalow, huge let, 75'X 183', two deathle garages. Chris-Tenove, Spencer Realty, 435-0808, 433-5664.

SALE - Grandview, \$198,500. Advactive bangatow. Four bedrooms, three baths, five appliances. Quiet park location. Chris Tenove, Spenor Realty, 435-0808, 433-5661.

SALE - 21/2 storey duples, 11/2 years old, University Avenue. Extra large study/ studio on third level. Double detached garage. Show home condition. Churck Seeley, Century 21 Docker Realty, 444-6075.

RENT - Shaped accommodation for one or two females. 15 minutes bus to University.

RENT - Shared accommodation near University for one or two females. \$300/month. Available interediately, 438-3077.

RENT - Elegantly furnished two-story home, two blocks from University and hospital. Four bedrooms, office, somroom, family room, garage. December 1993 - 30 June 1994. No pets/smokers, \$1,490/month, 432-1193.

RENT - House for rent, Laurier Heights. Four bedrooms, two full baths. Easy access to University, Losse, references, \$1,050/month. Available 1 October, 483-2938.

KENT - Beautiful two bedroom bouse. North Glenota. Available for minimal rent for exonth of December for person willing to look after two small dogs, 451-7581 after 5 pm.

RENT - Historic house, tiver view, 750; one bedroom. Hardwood, fireplace. \$425 plus utilities. Quiet, nonsmoker: LRT, bikepath access. 453-4666, 424-1702.

RENT - Beautifully renovated 1,250, two bedroom home (basement not included), 11012 University Assesse. Available 31 August. Five appliances, garden, parking, \$1,000/month. Noosmolens, 453-2513 or

RENT/SALE - Petrolia, maculine four bedroom, well kept. One bus to University. No pets. \$1,300/menth or sell, \$162,900. 435-8795.

RENT-Sornic Duca. Quiet, carpeted. bright one bedroom basement. Four appliartest \$315, 465-2602.

RENT - Near University, 6234 112A Street. Four bedrooms, 1 1/2 baths. Fully furnished, \$1,300/moeth. Available 3 September. 492-5301, 433-7165

RENT - East Windsor Park, Five bedroom. esecutive bungalow. Two baths, two-car garage. Available immediately, \$1,300, 468-1938.

RENT - Bonnie Doon area, fully furnished split-level. Five bedrooms, two baths. \$800-1 September - 30 April 1994, 468-5166.

RENT - Renovated, newly furnished basement seite. Two bedrooms, large living room, four appliances. Share kitches. Walking distance to University, Nonsosekers, \$660 plus utilities, \$300 damage deposit. 434-9583 ground riggs

SALE · Malmo. 1,200' bungalow is quiet neighbourhood close to four schools, Southquite, University Fame, Entirely rano-

vased. Double detached garage, live bedrnome, finished becement. Asking \$155,000. Clear title, immediate presession. 464-5287.

RENT - Quiet crescent, north Belgravia. Le50 bungalow, three plus two bedrooms. Large kitchen and living room, deck, double garage, five appliances, \$1,100/recouls. Call 436-14461

SALE - University ansa. Highrise condo on Seskatchewan Drive. Two bedzooms, two Bull ballin, \$100,005, 439-4264.

SALE - University walking distance, Old charm, new design. 21/2 storey, 1,700. Three bedrooms, two studies. Phone 438-3274.

RENT - Four bedroom fence, has bothrooms, six appliances. Queet North Clerova. Fenced yard, large garage. Close to actuals. Direct bus to University, \$1,000/month. Available September to May, 455-0517.

RENT - Three bedroom furnished and equipped house. I September, 432-7845.

SALE - Westbrook Estates, Classy four bedroom. Great for entertaining, Large dire ing, living and family rooms. Quality throughout and mint condition. Solarium/hot bub. Marjorie King, Spencer Realty, 435-0808, 435,0395

RENT - Superbly located house on Sat-Katchewam Drive, close to University. Partially furnished, sustable for couple. Possession date negotiable. \$1,030/month. 439-9796.

RENT - Millereck. Three budroom, five appliances, garage. 8730 84 Avenue. \$750. 466-4438.

SALE - Two lots, both 60' wide facing parkland, views, on Saskatchewan Drive. Call Lie Cruckford, Spencer Realty, 435-0808.

SALE - Traditional two storey 2,700. Large bedrooms, ensuite jacuzzi, snazzy white kitchen. Finished basement, skylights. Quiet Riverbend crescent. Available now: Must sell! Trade up. Lie Crackford, Spencer Realty, 435-0908.

SALE - \$125,000 three bedroom bungalow. Developed basement, hardwood under carpet, five appliances. Double garage, dieck, security system. Good location, convenient to University, Liz Creckford, Spencer Realty, 435-0908

SALE - Elegant two bedroom condominium in "The Belgravia". Fireplace, six applianors, jacuzzi, large balcony, underground parking. Adult building. Lix Creekland, Spencer Realty, 435-6808.

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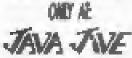
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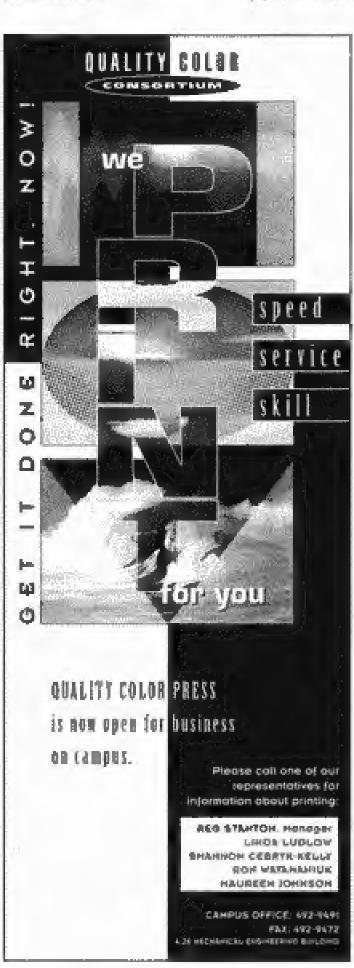
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llam.m2g.m.	35 n.m. to 2 p.m.	11 n/m. to 2 p.m.	It a.m. to 2 p.m.	Hum to 2 p.m
Evening Sention	Byening Season	Evening Sention	Owner Medical	
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The European pain relief shareafted Book, manage. chiro-gymnature, into furnish electricity. Maria Krieg, spins specialist, trained in Germany. trained of Germany. Reimburnable by University applementary builth core.

BACK BASICS Remedial Therapy

> 11610 75 Ave. 436-8059